



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,160	12/01/2003	Lei Wu	ART-00104.P.1.2	4793
24232 7590 12/09/2008 DAVID R PRESTON & ASSOCIATES APC 5850 OBERLIN DRIVE SUITE 300 SAN DIEGO, CA 92121				
EXAMINER				
YANG, NELSON C				
ART UNIT		PAPER NUMBER		
1641				
MAIL DATE		DELIVERY MODE		
12/09/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,160

Applicant(s)

WU ET AL.

Examiner

Nelson Yang

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/399,299.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO-SB06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Claims 49-68 are currently pending and under examination.

Rejections Withdrawn

2. Applicant's arguments, see p.5, filed August 26, 2008, with respect to the objection to the priority have been fully considered and are persuasive. The objection of the priority has been withdrawn.
3. Applicant's arguments, see p.6-10, filed August 26, 2008, with respect to the rejection of claims 49-54, 56, 59-64 under 35 U.S.C. 103(a) as being unpatentable over Parton et al. [US 5,653,859] in view of Hofmann [US 4,911,806] have been fully considered and are persuasive. The rejection of claims 49-54, 56, 59-64 under 35 U.S.C. 103(a) as being unpatentable over Parton et al. [US 5,653,859] in view of Hofmann [US 4,911,806] has been withdrawn.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show core extension structures dips as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. Although fig 27 supposedly references core extension structures as 160 and dips as 150, there is no such indication in the drawings

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 49-54, 56-64, 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. [US 6,440,725].

With respect to claim 49, Pourahmadi et al. teach a method comprising the movement of magnetic beads from one region to another in a chip by applying a series of magnetic fields to the cartridge by means of switchable electromagnets (column 18, lines 40-50), which would

involve the application of electric currents to one or more electromagnets to change the field distribution of the chip.

Although Pourahmadi et al. do not clearly disclose that the electromagnetic units are micron-sized, one of ordinary skill in the art would have found it obvious for the electromagnetic units to be micron sized, in order to establish a more compact device, and allow for more precise control of the magnetic particles in the microfluidic channels of the chip (column 2, lines 26-37).

7. With respect to claim 50, Pourahmadi et al. teach magnetic beads functionalized with various binding agents (column 18, lines 40-50).
8. With respect to claims 51, 52, Pourahmadi et al. teach that the binding agents may be nucleic acids or proteins attached by bifunctional linkers (column 17, lines 40-50).
9. With respect to claim 53, since Pourahmadi et al. teach a method comprising the movement of magnetic beads from one region to another in a chip by applying a series of magnetic fields to the cartridge by means of switchable electromagnets (column 18, lines 40-50), the chip would constitute a magnetophoretic device.
10. With respect to claim 54, Pourahmadi et al. disclose that the chip further comprises a particle switch (column 21, line 56 – column 22, line 2).
11. With respect to claim 56, Pourahmadi et al. teach dips in the chip (fig. 5b).
12. With respect to claims 57, 58, Pourahmadi et al. discloses the claimed invention except for teach that the electromagnetic units are located in a substantially horizontal configuration or vertical configuration. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the electromagnetic units in a horizontal or

vertical configuration, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

13. With respect to claim 59, Pourahmadi et al. teach a method comprising the movement of magnetic beads from one region to another in a chip by applying a series of magnetic fields to the cartridge by means of switchable electromagnets (column 18, lines 40-50), which would involve the application of electric currents to one or more electromagnets to change the field distribution of the chip.

Although Pourahmadi et al. do not clearly disclose that the electromagnetic units are micron-sized, one of ordinary skill in the art would have found it obvious for the electromagnetic units to be micron sized, in order to establish a more compact device, and allow for more precise control of the magnetic particles in the microfluidic channels of the chip (column 2, lines 26-37).

14. With respect to claim 60, Pourahmadi et al. teach magnetic beads functionalized with various binding agents (column 18, lines 40-50).

15. With respect to claims 61-62, Pourahmadi et al. teach that the binding agents may be nucleic acids or proteins attached by bifunctional linkers (column 17, lines 40-50).

16. With respect to claim 63, since Pourahmadi et al. teach a method comprising the movement of magnetic beads from one region to another in a chip by applying a series of magnetic fields to the cartridge by means of switchable electromagnets (column 18, lines 40-50), the chip would constitute a magnetophoretic device.

17. With respect to claim 64, Pourahmadi et al. disclose that the chip further comprises a particle switch (column 21, line 56 – column 22, line 2).

18. With respect to claim 66, Pourahmadi et al. teach dips in the chip (fig. 5b).

19. With respect to claims 67, 68, Pourahmadi et al. discloses the claimed invention except for teach that the electromagnetic units are located in a substantially horizontal configuration or vertical configuration. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the electromagnetic units in a horizontal or vertical configuration, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

20. Claims 55, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pourahmadi et al. [US 6,440,725] in light of Lettini et al. [US 3,922,050].

With respect to claims 55, 65, Pourahmadi et al. teach a method comprising the movement of magnetic beads from one region to another in a chip by applying a series of magnetic fields to the cartridge by means of switchable electromagnets (column 18, lines 40-50), wherein the electromagnets would constitute a core. Although Pourahmadi et al. do not specifically disclose a terminal structure, one of ordinary skill in the art at the time of the invention would have known that in order for a conductive body of material to be utilized to create a particular electrical function, such as in electrodes, it is necessary to provide an electrical contact such as electrical terminals to the body of electrically conducting material (as evidenced by Lettini et al., column 1, lines 33-50).

Therefore, one of ordinary skill in the art would have known that to utilize the electrodes of Pourahmadi et al., so that electrical signals could be applied, electrical terminal structures would have been required.

Double Patenting

21. Claims 49-52, 59-62 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,806,050. Although the conflicting claims are not identical, they are not patentably distinct from each other because the conflicting claims teach a method of manipulating ligand molecules attached to magnetic materials such as particles (claim 18-22) by selectively energizing magnetic cores located on an unit to form magnetic fields to position the magnetic particles (claims 1). The conflicting claims further disclose that the ligand moieties may be nucleic acids or antibodies (claims 24, 25) and linked to the magnetic particles by cleavable linkers (claim 13).

Response to Arguments

22. Applicant's arguments with respect to claims 49-68 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

23. No claims are allowed.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571)272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nelson Yang/
Primary Examiner, Art Unit 1641